



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/084,356

02/28/2002

Michiaki Sakamoto

8004-1003

5588

466

7590

12/30/2004

YOUNG & THOMPSON
745 SOUTH 23RD STREET
2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

WANG, GEORGE Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,356

Applicant(s)

SAKAMOTO ET AL.

Examiner

George Y. Wang

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4-8 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4-8 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2871

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2, 4-8, 16-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (U.S. Patent No. 5,936,688, from hereinafter "Tsuda") in view of Nakai (U.S. Patent No. 6,219,119).

4. Regarding claims 16-17, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising plural interconnected protrusions (fig. 9d, ref. 72c) made of organic resin (col. 216, lines 40-41) having depressed areas between adjoining ones of the plural protrusions, a first bumpy layer (fig. 9e, ref. 74) covering the protrusions having a bumpiness generated by the protrusions, and a base layer of a reflector on the first layer, where the base layer has a bumpiness corresponding to the bumpiness of the first layer to form a protrusion pattern of a surface of the reflector, the protrusion pattern giving an inclination angle to the surface according to a specified distribution (fig 2a-2e).

However, the reference fails to specifically disclose a reflector with plural interconnected protrusions where each depressed areas has a closed geometric shape and being isolated from others of the depressed areas.

Nakai discloses a reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions where the depressed areas (fig. 8, ref. 4) between

Art Unit: 2871

adjoining protrusions (fig. 8, ref. 1) are closed geometric shapes (fig. 5, ref. 2) and being isolated from others of the depressed areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

5. As to claim 2, Tsuda discloses a reflector as recited above where the specific distribution of inclination angle values of the roughened surface has an average value within a range from 2° to 6° (fig 2a-2e).

6. Regarding claims 4-8, Tsuda discloses the reflector as recited above, however, the references fail to specifically disclose depressed areas between adjoining protrusions, depressed area having a closed geometric shape selected from a group consisting of triangle, rectangle, or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height.

Nakai discloses reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions with depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1), the depressed area having an elliptical and rectangular geometric shape (fig. 4), rectangle, or ellipse, and protrusion dimensions that satisfy 0.5

Art Unit: 2871

$\leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height (fig. 13; col. 10, lines 10-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape selected from a group consisting of rectangle or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

7. As per claim 19, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising plural interconnected protrusions (fig. 9d, ref. 72c) made of organic resin (col. 216, lines 40-41) having depressed areas between adjoining ones of the plural protrusions, a first bumpy layer (fig. 9e, ref. 74) covering the protrusions having a bumpiness generated by the protrusions, and a base layer of a reflector on the first layer, where the base layer has a bumpiness corresponding to the bumpiness of the first layer to form a protrusion pattern of a surface of the reflector, the protrusion pattern giving an inclination angle to the surface according to a specified distribution (fig 2a-2e).

However, the reference fails to specifically disclose a reflector with plural interconnected protrusions where each depressed areas has a closed geometric shape and being isolated from others of the depressed areas.

Nakai discloses a reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions where the depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1) are closed geometric shapes (fig. 5, ref. 2) and being isolated from others of the depressed areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda and Nakai in view of Moon (U.S. Patent No. 6,543,901).

9. As to claim 18, Tsuda discloses the reflector as recited above with a protrusion pattern giving inclination angle (fig 2a-2e) to the surface according to a specific distribution where a first component with an inclination angle value of 0° is 15% or less in area (col. 7, lines 41-45) and a second component with an inclination is 50% or greater in area (col. 6, lines 51-55).

However, the reference fails to specifically disclose a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10°.

Moon discloses a reflector having a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10° (col. 8, lines 4-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a reflector for a reflection-type LCD device comprising a second component with an inclination value from 2° to 10° that is 50% or greater in area since one would be motivated to prevent the occurrence of interference (col. 8, lines 7-8). This would not only improve light efficiency for obliquely inputted light but also optimizes brightness and display quality (abstract; col. 2, lines 44-55).

Response to Arguments

10. Applicant's arguments with respect to claims 2, 4-8, and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant amended independent claim 17 to further the depressed areas as "being isolated from others of said depressed areas" and asserts that the cited prior art references fail to teach this new limitation and a closed geometric shape. However, Examiner disagrees. First, the language, "a closed geometric shape," is broad and pretty much any type of space can form a "geometric shape." Thus, the importance of this shape may rest on its "closed" nature. However, it is not understood how a "closed" shape formed by protrusions would still have a bumpy surface. And since Applicant's specification does not go into any detail as to the meaning of closed, Examiner could only construe the meaning of "closed geometric shape" as "definite geometric shape"

Art Unit: 2871

since Applicant offers various definite shapes, such as triangular, rectangular, and elliptical, in the dependent claims. But since the independent claims do not rely on any of the defined shapes, it is clear that any geometric shape could meet the limitations of the claim language. Furthermore, even if the closed geometric shapes are interpreted in light of the new limitation that each shape is "isolated from others," it appears that the cited Nakai reference clearly discloses protrusions with depressed areas having a closed geometric shape (fig. 5, ref. 2).

As to dependent claim 2, Applicant argues that the cited prior art references fail to specifically disclose an inclination angle value in the range from 2° to 6° and asserts that only fig. 2e, is relevant for this determination because only fig. 9a – 9l "show depressions between protrusions." However, Examiner disagrees. Examiner notes that each of the figures that correspond to fig. 2a – 2e depict protrusions and depressions. Therefore, when the whole of fig. 2a – 2e is taken into consideration, it would be obvious that the average inclination value would be in the range from 2° to 6°.

With regard to independent claim 19, Applicant argues that the cited prior art references fail to disclose "a layer of organic resin having a plurality of spaced apart depressed areas lacking the organic resin, each of the depressed areas having a closed geometric shape." However, Examiner disagrees. It is clear that the Nakai reference discloses a layer of organic resin having a plurality of spaced apart depressed areas lacking the organic resin, each of the depressed areas having a closed geometric shape (fig. 5, ref. 2), corresponding to the depressed areas of the base layer (fig. 5, ref. 4).

Therefore, Examiner holds to the validity of the references used and maintains rejection.

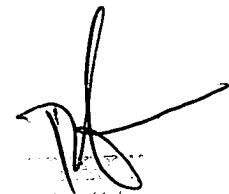
Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
December 20, 2004



EX-100
DEC 20 2004